

Transforming data into information: Scientific computing for synchrotron research

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Data volume and complexity at synchrotron facilities are increasing at a fast pace. The translation of data to information is getting more difficult due to the inability of researchers to fully comprehend the underlying analysis approaches and systems required for data processing. Even today it is virtually impossible to analyze raw data through conventional approaches without any significant investment in computing hardware or software. Moreover, future experiments will typically involve multiple detectors to measure different phenomena simultaneously providing heterogeneous data streams. All of these factors necessitate the need for advancements in scientific computing practices to match new experiments and detector technologies. In this talk, I will briefly summarize the current data-intensive science problems at synchrotron facilities; review the technical developments; outline the current status as well as future needs and directions in scientific computing for synchrotron-based research.